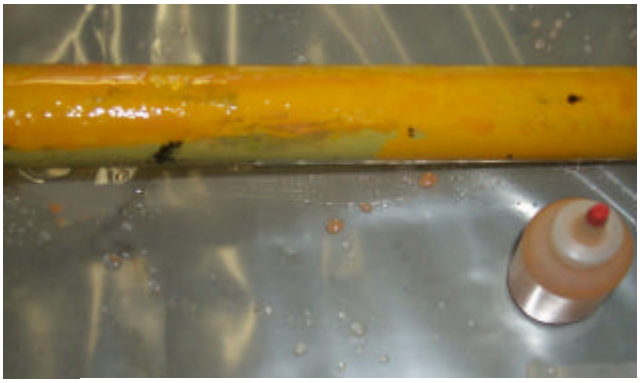

Paint Lifter product applied on handrails

Idaho National Engineering and Environmental Laboratory

Technology Deployment Summary Sheet

PAINT LIFTER (PAINT REMOVAL PRODUCT)

THE NEED

The Idaho National Engineering and Environmental Laboratory (INEEL) has a need for a device to aid in removing various types of paint on walls, floors, metal piping, and metal surfaces to allow torch cutting, paint sampling, and paint removal for refinishing. The current method includes using hand-held scrappers, chisels, or powered scalers. This can be a time consuming and physically demanding task for paint removal.

THE TECHNOLOGY

Paint Lifter Selective Adhesive Release Agent (SARA) technology is a water-based coating and paint remover that is completely biodegradable and non-toxic. It is worker friendly and environmentally safe, yet is effective in removing paints and coatings from porous and non-porous substrates, which makes it an ideal choice for all paint removal related applications. When applied, the active ingredients begin traveling down through the paint by opening the pores of the coating, allowing the product to penetrate to the substrate. Once these ingredients have reached the substrate, they produce oxygen through an internal chemical reaction. The bond between the coating and the substrate is destabilized and the pressure created by the oxygen breaks that bond and releases the paint from the underlying surface. In an indoor situation, the stripper will stay moist and active for up-to four days. For optimum performance, temperatures of 65°F/18°C or warmer are recommended. The Paint Lifter product costs $50 dollars per gallon, with approximately 75 sq ft/gal (1.5 sq m/L) of coverage per gallon.

The Paint Lifter products SI-200 and SI-500 are effective on different combinations of paint (Latex, Alkyds, Epoxies, and Urethanes) and substrates (Steel, Concrete, and Aluminum Alloys). SI-200 product is recommended for concrete. The time required to lift the paint will vary, depending on types of paint, number of paint layers, substrate temperature, and ambient temperature. For a single layer of paint approximately 8 to 10 mils (20 to 25 microns) of product is brushed or rolled onto the painted surface. When removing multiple layers, increase the thickness of the Paint Lifter by approximately 2 mils (5 microns) per paint layer. Most paints will lift in 1 to 6 hours. Whenever possible the Paint Lifter should be allowed to sit overnight prior to removal. Many painted surfaces will not require more than a one or two hour dwell time. Paint removed within hours is damp and sticky whereas paint removed after days is dry and flaky. When removing multiple layers there may be poor adhesion between paint layers, in these cases the Paint Lifter may lift one or more layers prior to reaching the substrate. When this happens remove the lifted layers and reapply. Removal of the lifted paints from the surface can be done by squeegee, scraping, pressure water rinse or vacuum.

Paint Lifter product removing paint from handrail

DEPLOYMENT

D&D paint removal technicians at the INEEL deployed the Paint Lifter product at a Test Area North Facility. The Paint Lifter products SI-200 and SI-500 were used to remove yellow paint from metal handrails in TAN-616. The handrails contain lead-based paint, which needed to be removed before the metal rails could be torch cut and removed from TAN-616. D&D technicians applied a small amount of Paint Lifter on the rails with brushes and waited for the chemical reaction to begin lifting paint from the rails. Within 5 minutes the Paint Lifter began traveling down through the paint

and opening the pores on the coating on the handrail. After waiting 5 minutes, the technicians removed the yellow paint from the handrail with ease using metal scrapers. The total elapsed time to remove paint from a 24-inch section of 2-inch pipe was 10 minutes.

RESULTS

The Paint Lifter was applied to the handrails and in a matter of minutes proved to be very effective in removing the yellow paint. Using the Paint Lifter product saved the technicians an estimated 1-hour in removal time at each cut location. In addition to the observed time saving, less time was spent in a radiation-contaminated area. There was less risk of injury from using a hammer and chisel, and worker exposure in a hazardous environment was reduced.

BENEFITS

- Reduces risk of hand injury.
- Reduces labor costs because the Paint Lifter can be applied, and removed within 10 minutes, as compared to 1 hour with scrapers, providing a reduced labor cost of 50 minutes per cut.
- Eliminates damage to substrate from chipping and scraping.
- Reduces time workers are exposed to hazardous conditions, such as radiation.

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